The Bounce Method, The Mint and Xanadu®: A Briefing

Theodor Holm Nelson

Third HyperCoin Workshop
96.11.30-96.12.01

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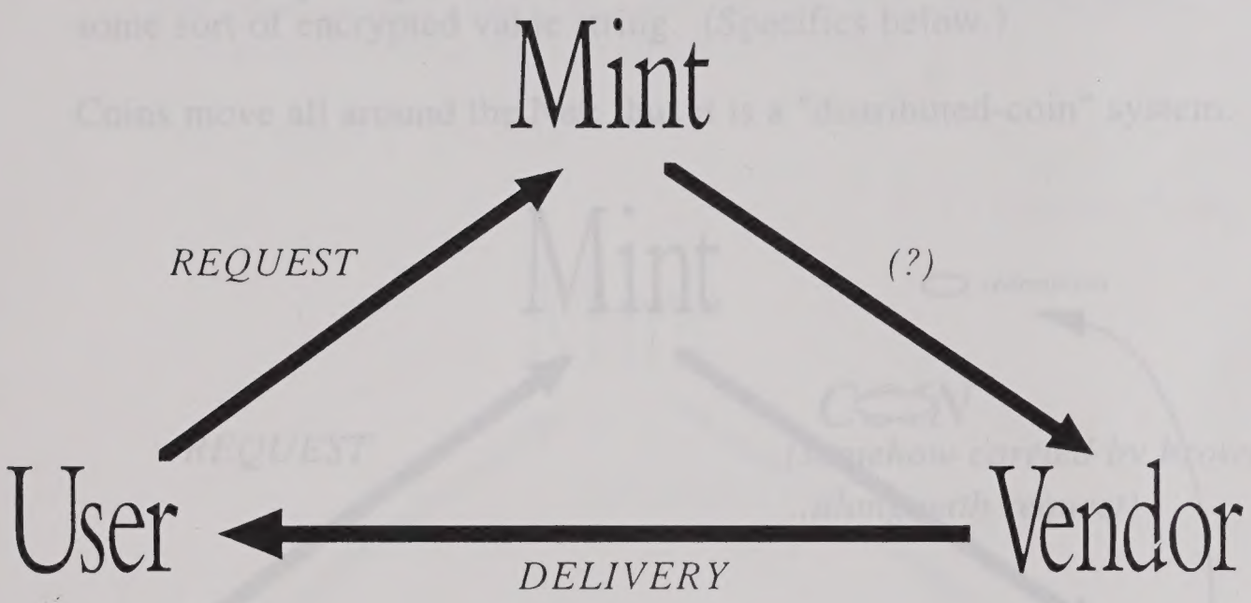
BOUNCE METHOD IN GENERAL



1) The user's Web request goes first to the Mint.

2) The Mint does something or other.

3) The Mint then bounces the session to the Vendor.

4) The Vendor delivers the goods (sometimes a Web page, sometimes not).

THE DIFFERENT BOUNCE METHODS ARE VARIANTS OF THIS BASIC PATTERN.

We will look at these variations in succession.

Digitized by the Internet Archive
in 2025

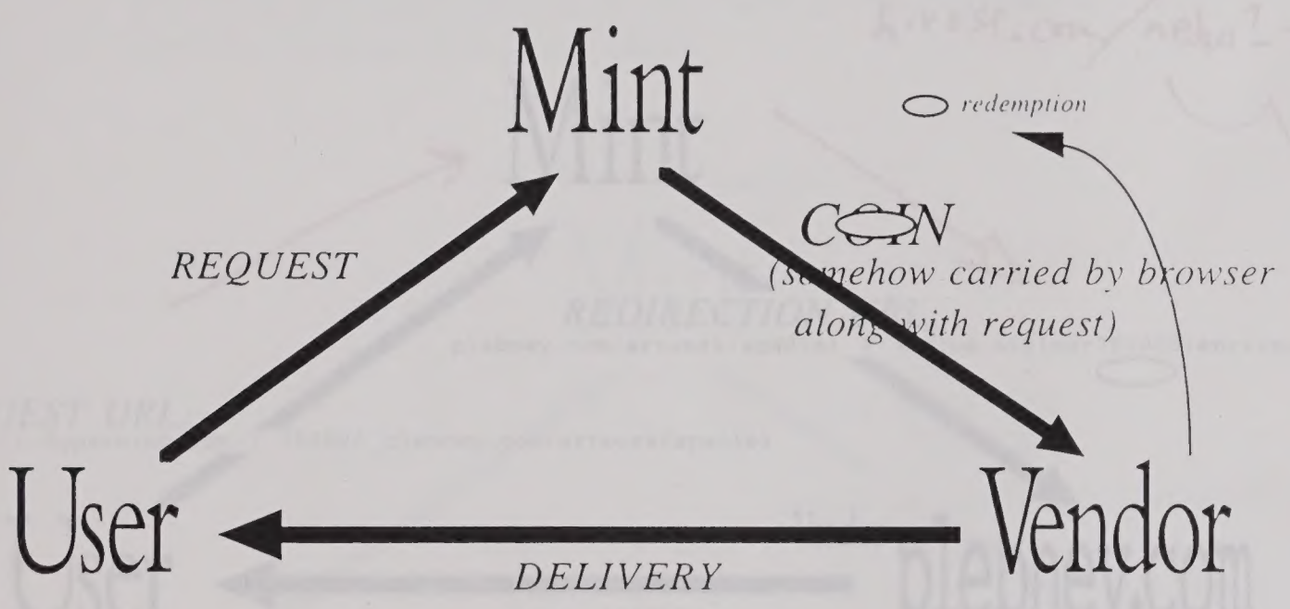
https://archive.org/details/thrbouncemethodm00tedn

BOUNCE METHOD WITH COINS

(distributed throughout the Net)

The user's request goes to the Mint. The Mint creates a "coin," some sort of encrypted value string. (Specifics below.)

Coins move all around the Net; thus it is a "distributed-coin" system.



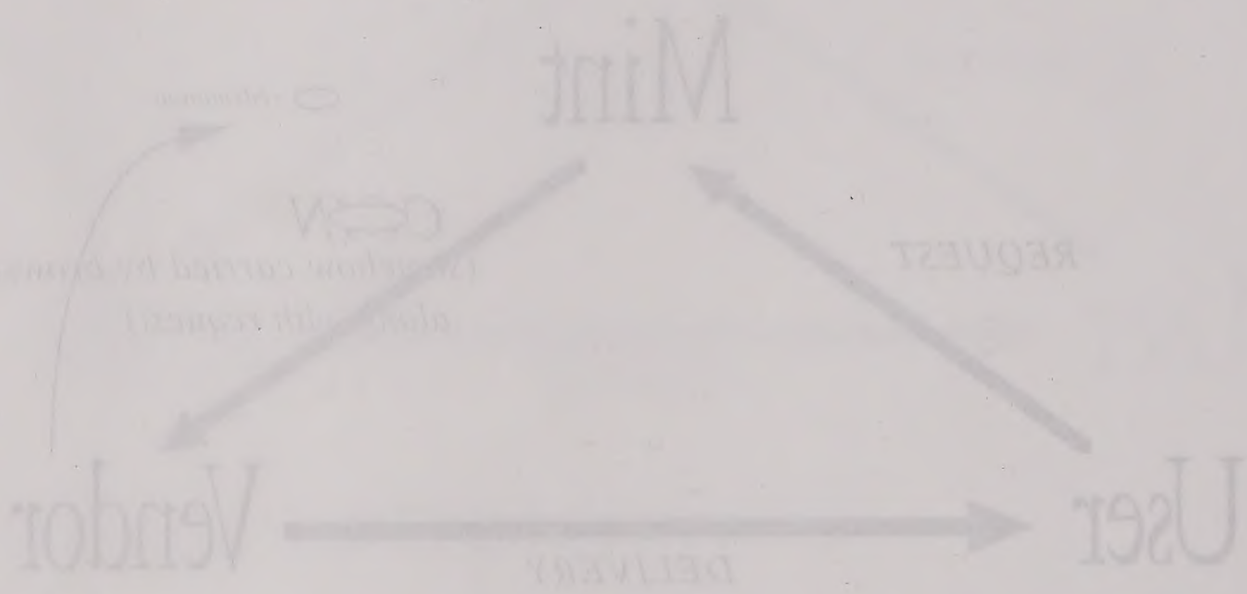
1) The user's Web request goes first to the Mint.

2) The Mint makes a "coin" of the appropriate denomination, which it gives to the User's browser.

3) The Mint then bounces the session to the Vendor.

4) The Vendor tests the coin for apparent validity, then delivers the goods.

5) Vendors return the coins to the Mint for redemption and credit of their accounts.

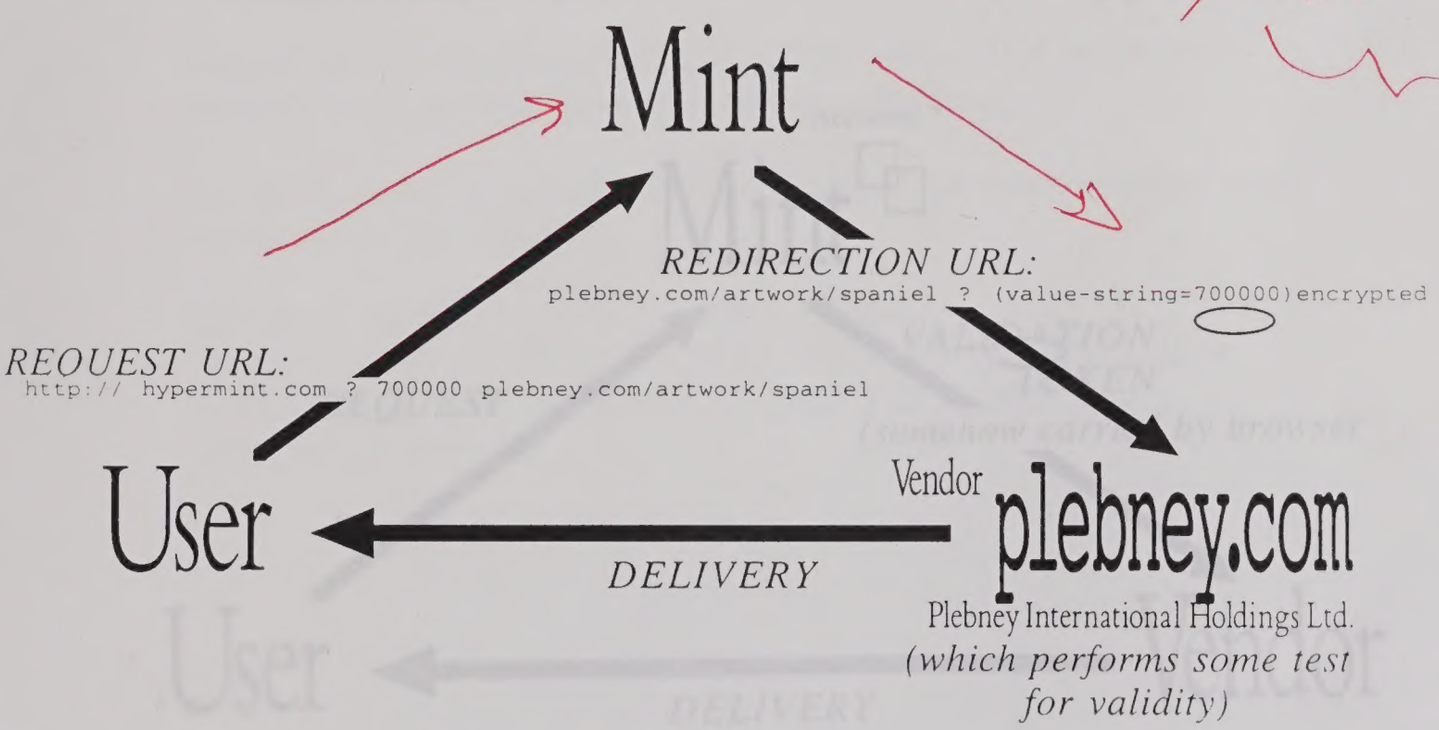

Mint
User
Vendor

BOUNCE METHOD WITH COINS [detail]

The publisher creates a URL that goes first to the Mint, names the price, and THEN states the real URL of the material.

The Mint replaces the URL with the real URL of the material, then adds the value string-- in the URL itself.

This is called a "checklet."™

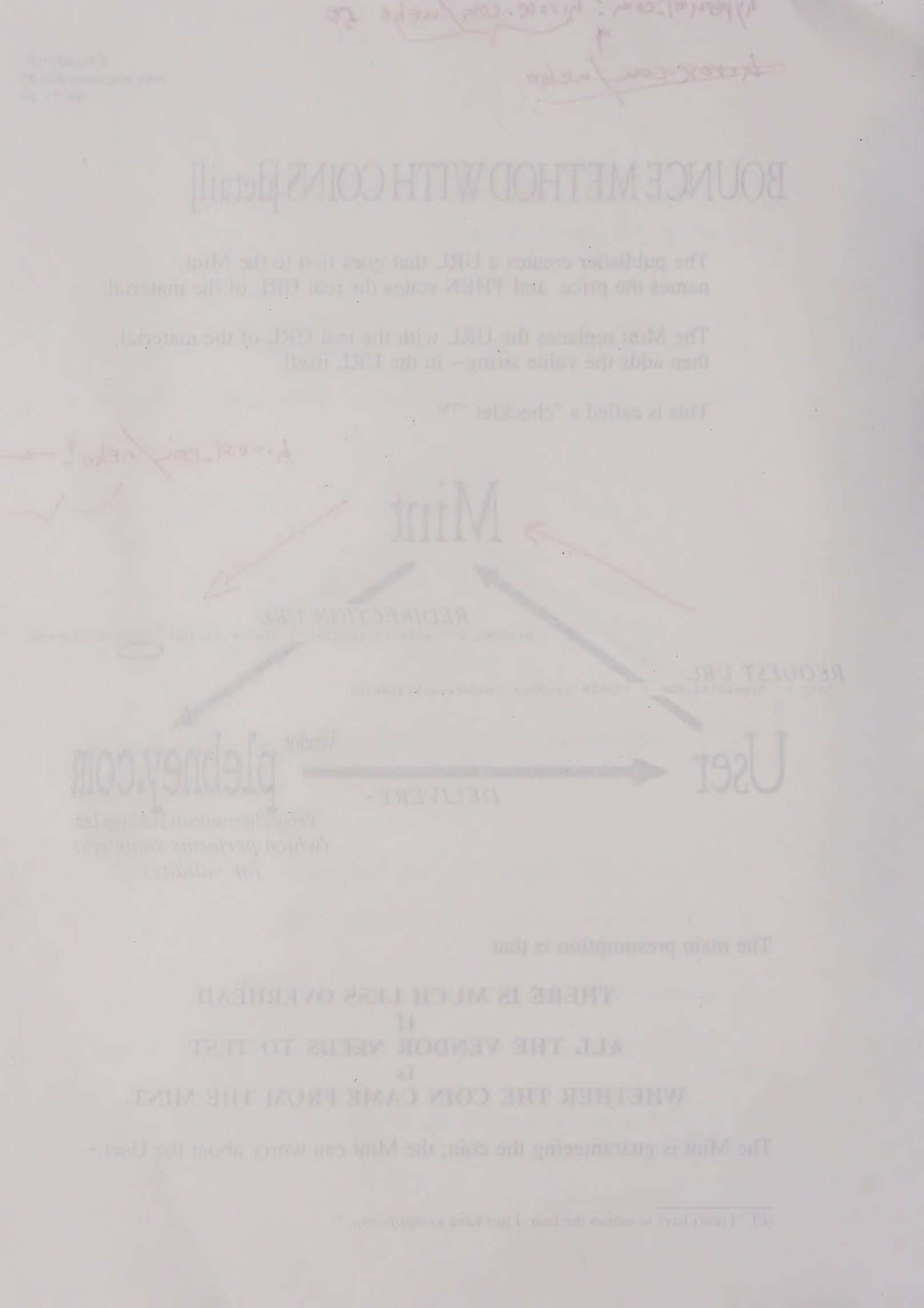


The main presumption is that

THERE IS MUCH LESS OVERHEAD
if
ALL THE VENDOR NEEDS TO TEST
is
WHETHER THE COIN CAME FROM THE MINT.

The Mint is guaranteeing the coin; the Mint can worry about the User.*

(Cf. "I don't have to outrun the bear. I just have to outrun *you*..")

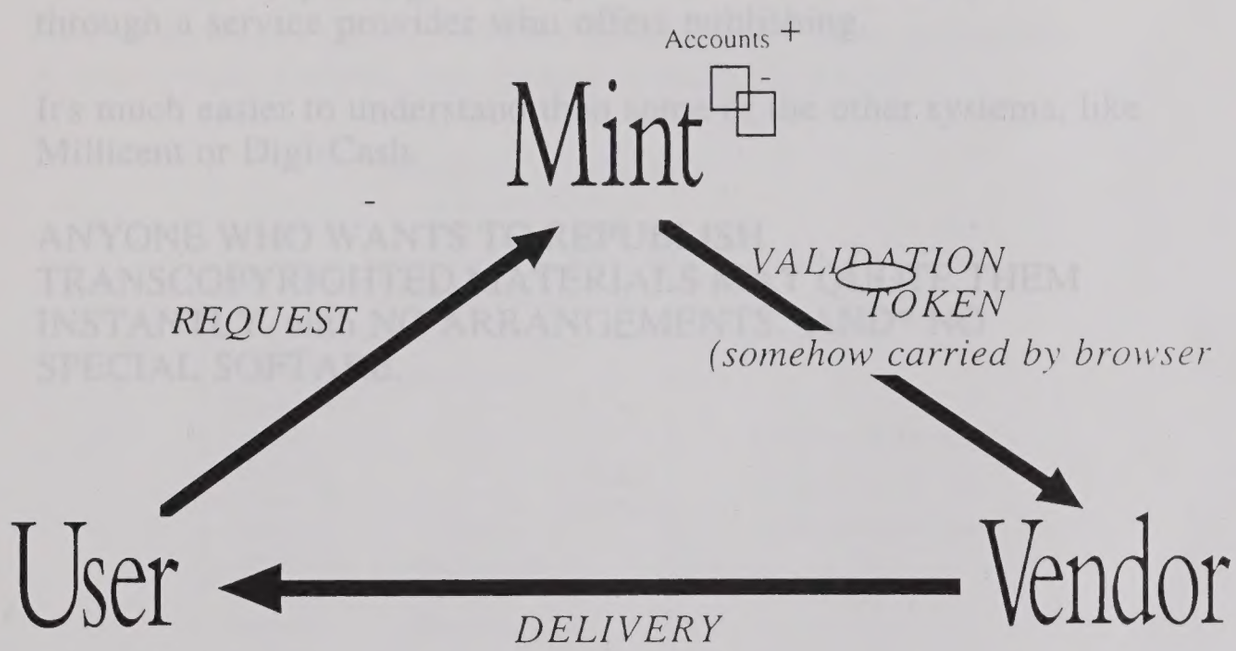


BOUNCE METHOD WITH ACCOUNTING

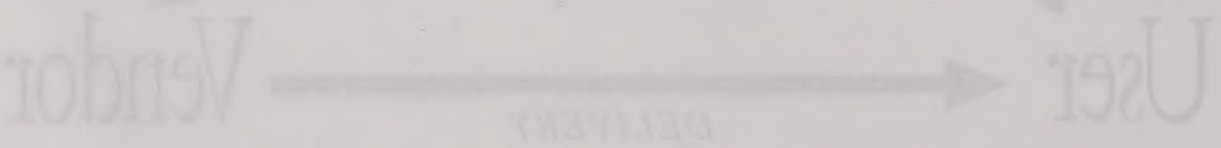
The publisher creates a URL that goes first to the Mint, names the price, and THEN states the real URL of the material.

The Mint replaces the URL with the real URL of the material, then DECREMENTS THE USER'S ACCOUNT, INCREMENTS THE VENDOR'S ACCOUNT.

The Mint then redirects the session with a VALIDATION TOKEN, instead of the coin itself.



This has some advantages. It does involve the Mint more directly in transactions, which could be a legal detriment.


User
Vendor

POWERFUL ADVANTAGES *of the Bounce Method.*

The system uses Ordinary Web Browsers.

Users/purchasers may participate INSTANTLY, with NO SOFTWARE INSTALLATIONS; just an account.

Publishers may participate easily, either with a CGI script or through a service provider who offers publishing.

It's much easier to understand than some of the other systems, like Millicent or Digi-Cash.

ANYONE WHO WANTS TO REPUBLISH TRANSCOPYRIGHTED MATERIALS MAY QUOTE THEM INSTANTLY, with NO ARRANGEMENTS *AND* NO SPECIAL SOFTARE.

COIN MODEL: Best So Far

A number of distributable coin designs have been proposed. Here is the best one so far.

The Mint distributes* blank checklets to its paying customers, and a program to use them automatically if the prices are within acceptable range.

THE VENDOR WILL BE ABLE TO VERIFY THAT THE CHECK IS FROM THE MINT; THE MINT WILL BE ABLE TO VERIFY THAT THE CHECKLET IS AUTHENTICALLY FROM THE CUSTOMER IT WAS DISTRIBUTED TO, AND REPRESENTS A VOLUNTARY PAYMENT (as defined within the rules of this system).

Here is a sample checklet as distributed by the Mint, in batches. A user would probably get several thousand at a time.

CLEAR	Encrypted all together with the MINT'S PRIVATE KEY; EVERYONE KNOWS THE PUBLIC ONE		
Mint header in clear, saying effectively: "Hear ye! Official Checklet begins!"	Authenti-cation string: "We hereby declare that this is a valid checklet."	Serial number	[material will be added here by user's machine]
Readable by Vendor			

* Sells or gives; this is irrelevant to the method.

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Mint heading clear saying effectively "Hear ye! Official Checklet begun!"	Authentication string "Mk" hereby declare that this is a valid checklet	Serial number

Material will be added here by user's machine]

Readable by Vendor

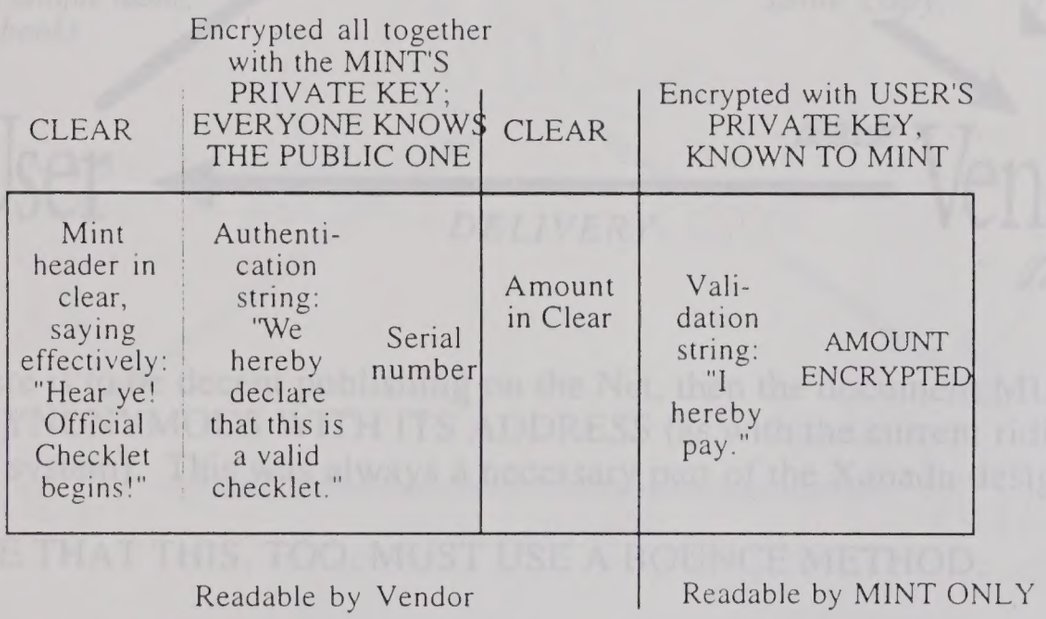
* Sells or gives; this is irrelevant to the method.

(BEST COIN, COINTINUED.)

The Mint has a public key everyone knows; only the Mint knows its private key.

Each user deposits with the Mint a different key.*

The user's machine fills in the amount of the coin, encrypts it with his private key, and can send it directly to the Vendor (bypassing the Mint, which has authenticated it because it trusts the user).



The Vendor checks that it's validly from the Mint, and can therefore send the goods.

In due course the Mint receives the checklet and can review that it was validly signed by the user.

Q.E.D.

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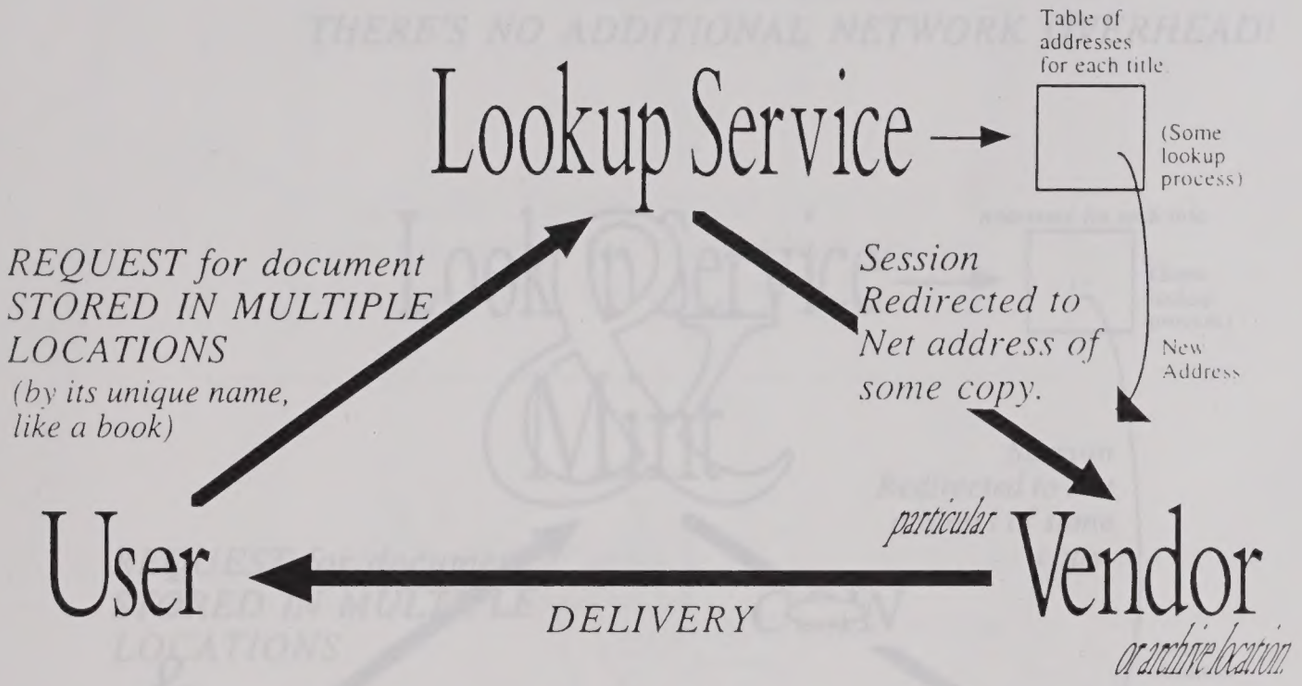
* This need not be a trapdoor code, but any fast key.

The Compelling Resemblance of the Bounce Payment Method to--

"WHERE IS A COPY OF THIS DOCUMENT?"

-- essential for decent network publishing.



If there is to be decent publishing on the Net, then the document MUST NOT BE SYNONYMOUS WITH ITS ADDRESS (as with the current ridiculous URL system). This was always a necessary part of the Xanadu design.

NOTE THAT THIS, TOO, MUST USE A BOUNCE METHOD.

There needs to be a place to look up the different locations where the document is stored.*

The original WWW design proposed that this would be called "URN" (Universal Resource Name) or "URL" (Universal Resource Locator) or "URI" (Universal Resource Identifier).

I prefer to call it "Publish-by-Name," which the public will probably like best. Everybody is weary of the url mess, which we may call Publish-by-Address.

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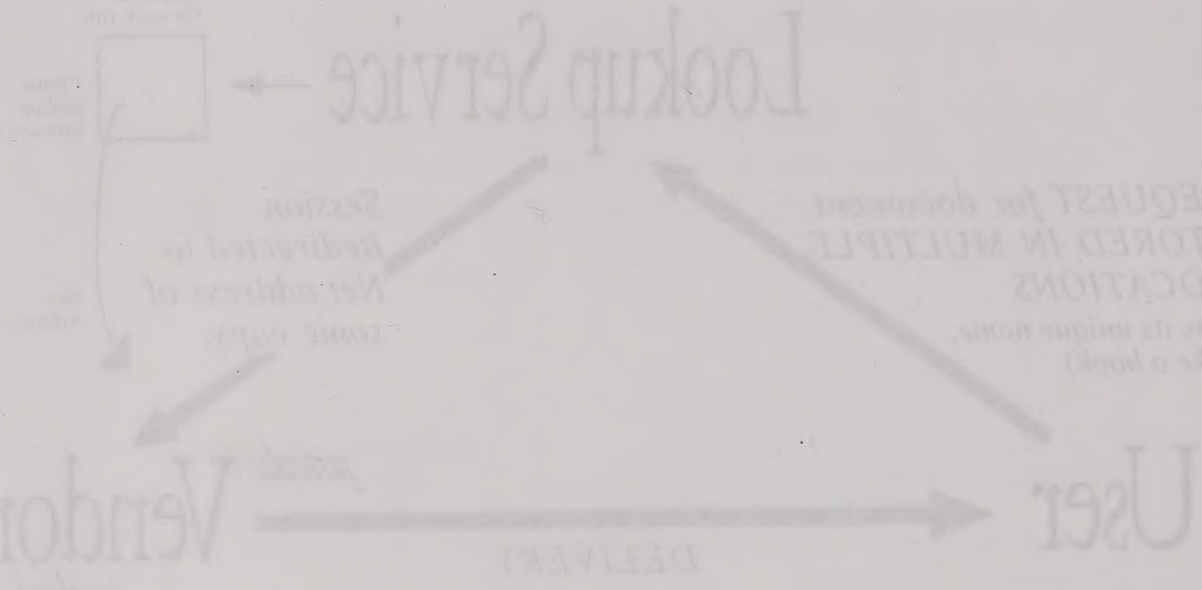
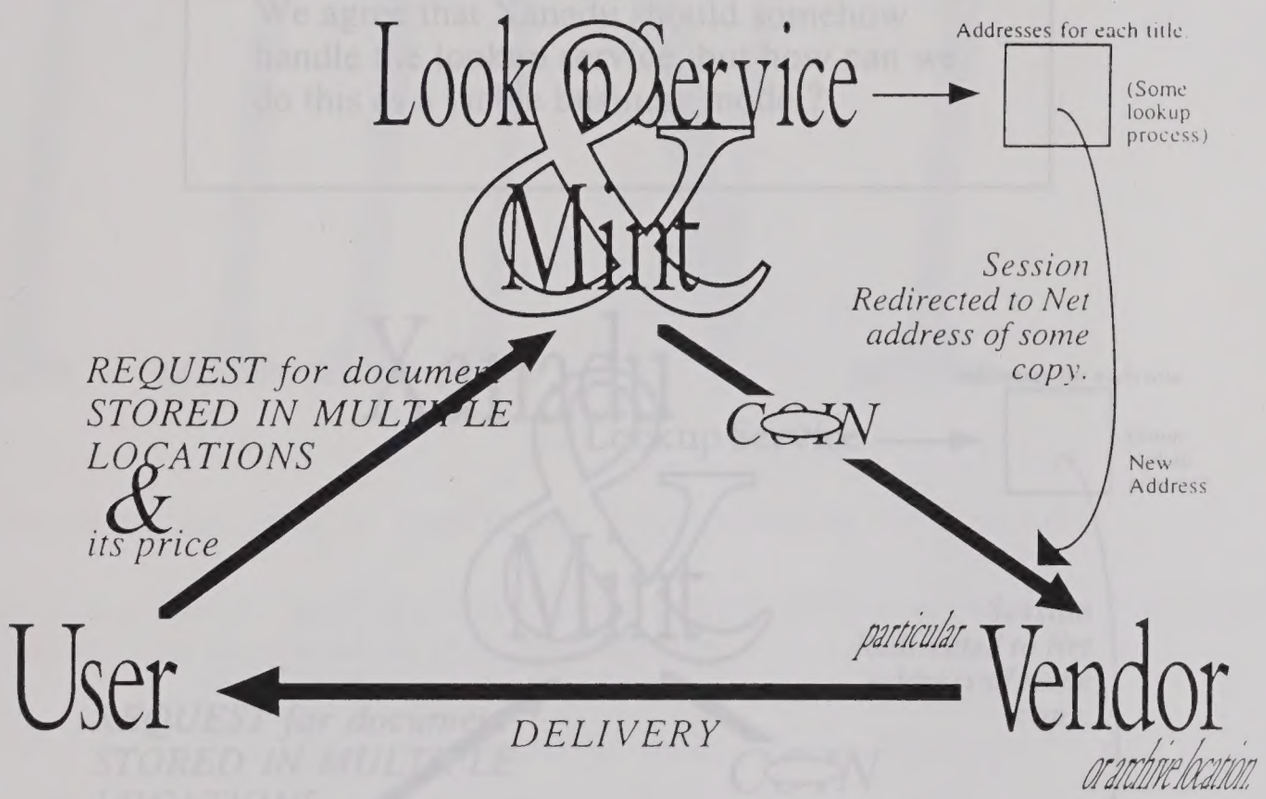
* (It bears some similarity to the DNS lookup of Internet domains, except that DNS is 1-to-1 and this must be 1-to-many.)



The obvious thought--

WHY NOT COMBINE THEM?

THERE'S NO ADDITIONAL NETWORK OVERHEAD!



See here.

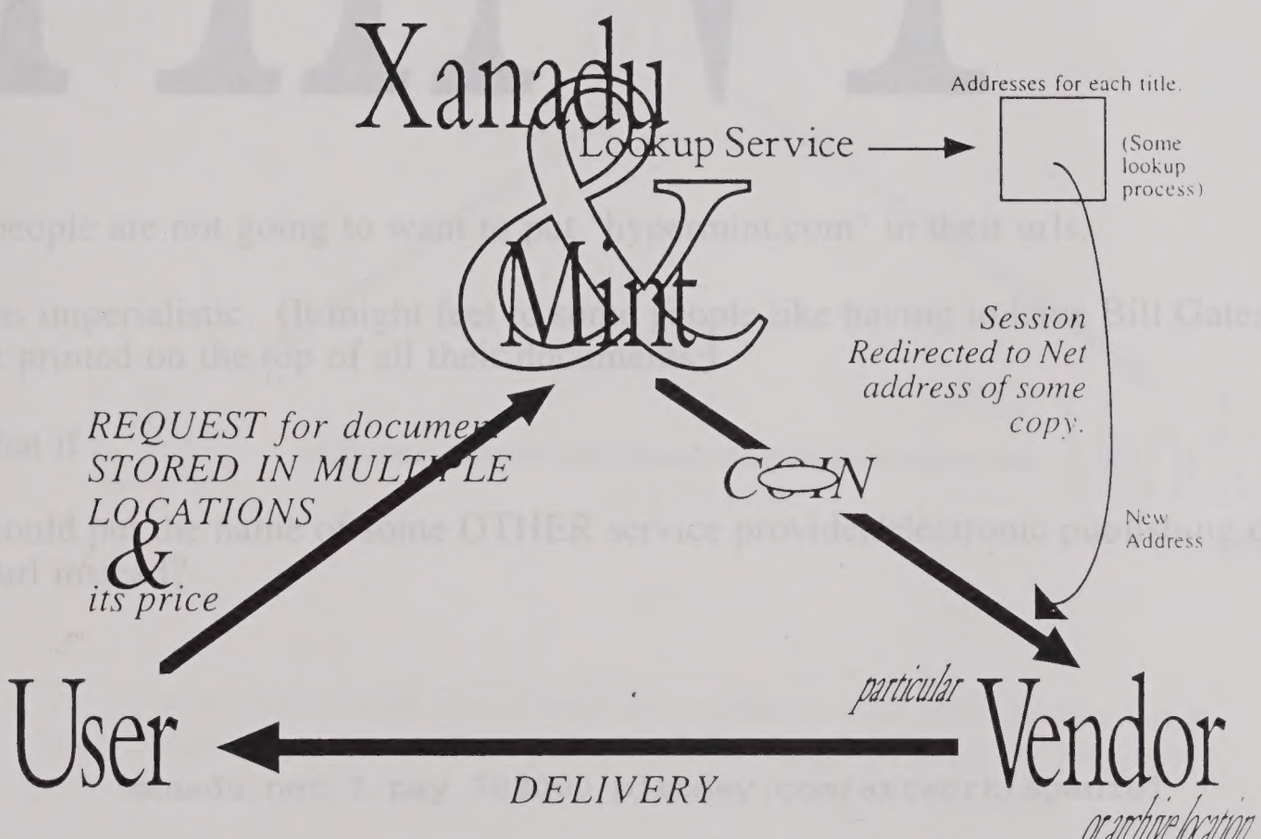
If we combine these two services, and do them in parallel, it'll take no longer than if we did only one of them.

SYNERGY!

But what should be the exact arrangement?

But HOW Combine Them?

We agree that Xanadu should somehow handle the lookup service, but how can we do this as a viable business model?



Aha! HOW Combine Them?

We agree that Xanadu should somehow handle the lookup service, but how can we do this as a viable business model?

HINT

Most people are not going to want to put "hypermint.com" in their urls.

It seems imperialistic. (It might feel to some people like having to have Bill Gates' picture printed on the top of all their documents.)

But what if ...

They could put the name of some OTHER service provider/electronic publishing company in the url instead?

Like

```
xanadu.net ? pay 700000 plebney.com/artwork/spaniel
```

```
glasswings.com.au ?xanadu.net ? price 700000 plebney.com/artwork/spaniel
```

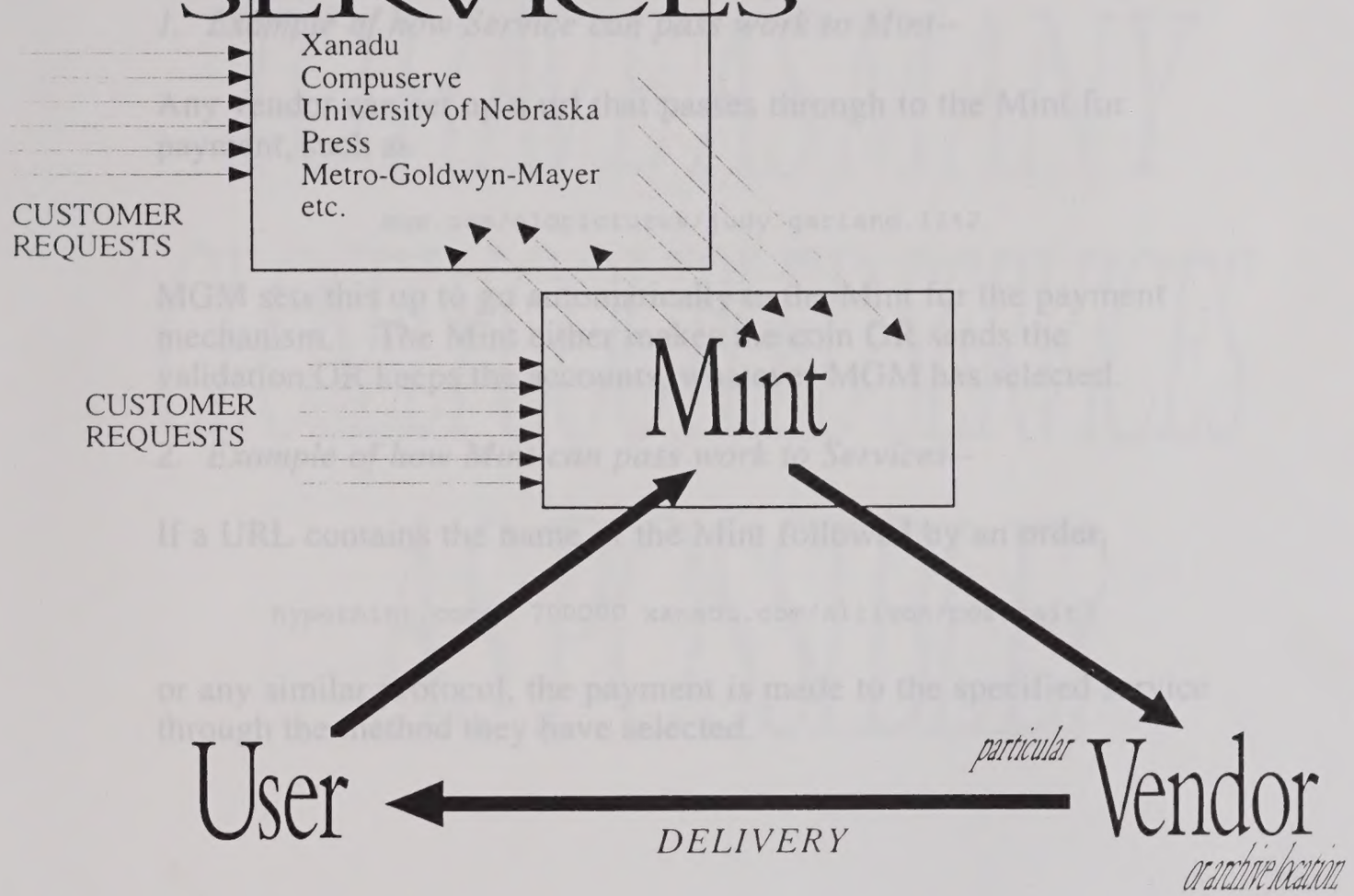
```
xcompuserve.com ? hypermint 700000 plebney.com/artwork/spaniel
```

Any of these could connect to the Mint ALSO to provide payment services through us, with CGI scripts that do the same thing we are planning to do with

```
hypermint.com ? 700000 plebney.com/artwork/spaniel
```

HUNT

CLOSELY COUPLED SERVICES



The Mint works at high speed with any vendors who want to pay for a close connection. These will probably be content packagers, Internet providers, and publishing-service providers (such as Xanadu).

If they want, they can have fast close coupling and pass requests TO the mint, get requests FROM the mint as specified:

Traffic arriving in either diretion is quickly passed to the other side.

CLOSE COUPLING:
Examples.

1. Example of how Service can pass work to Mint--

Any vendor can set up a url that passes through to the Mint for payment, such as

```
mgm.com/oldpictures/judy.garland.1142
```

MGM sets this up to go automatically to the Mint for the payment mechanism. The Mint either makes the coin OR sends the validation OR keeps the accounts, whatever MGM has selected.

2. Example of how Mint can pass work to Services--

If a URL contains the name of the Mint followed by an order,

```
hypermint.com ? 700000 xanadu.com/allison/portrait7
```

or any similar protocol, the payment is made to the specified service through the method they have selected.

CLOSE COUPLING:
Examples.

WHY IS IT IMPORTANT TO HAVE AS MANY CLOSELY COUPLED SERVICES AS POSSIBLE?

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CRITICAL MASS
The Launch Problem.

Success depends on getting critical mass: thousands of vendors and major service providers who want to go through us.

If adoption is slow, we can easily fail, because the Net moves so fast.

If adoption is slow, political opposition from the W3 committee will appear.

VISIBLE, FAST SUCCESS IS IMPORTANT.

Therefore WE WANT AS MANY PEOPLE CONNECTING THROUGH OUR METHOD AS POSSIBLE, AS FAST AS POSSIBLE.

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SUMMARY AND CONCLUSIONS

We should implement a number of methods, the better to work with everyone's different needs.

The Bounce Method is a FAMILY of methods have incredible advantages, and can be adapted and tuned in various ways.

The appropriate coupling between the Mint and Xanadu becomes clear when we consider --

1. Lookup should be combined with bounce;

2. Thus Xanadu should be closely coupled;

BUT

3. The Mint should develop, from the idea of close coupling to Xanadu, a generalized system of close coupling with other services;

4. The more generalized this is, the better or chance of rapidly acquiring market share.

5. Xanadu should be given a certain amount of lead time to get established, after which it should simply be one of the client services closely coupled to the HyperMint.

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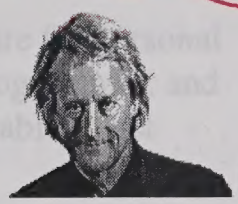
http://www.sfc.keio.ac.jp/~ted/
98.01.08 (d7

Home Page of Ted Nelson,



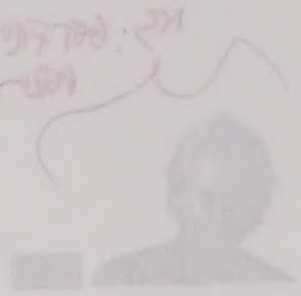
Designer, Generalist, Contrarian.

Example of Transcopyright:
This picture may be used in other Web pages
under specific conditions.
For the exact transcopyright permission,
click on the transcopyright symbol
just to the right of the picture.

Who I Am
What I Do
My Parallel Universe
"What's He Doing in Japan?"

Demos for Open Research Forum at Keio University, 97.11.21.
For my students at Keio University
About Project Xanadu and Xanalogical Structure.
To Transcopyright Discussion and Transcopyright Demo.

Home Page of Ted Nelson,



Designer, Generalist, Contrarian.

Who I Am
What I Do
My Parallel Universe
"What's He Doing in Japan?"

To Ted Nelson home page

Designer

From boyhood I designed things. Since 1960 I have been designing interactive software for personal computers. Very few other people can make that statement.* However, I am not a programmer, and because my designs have been extremely different from other people's, I have been unable to get backing.**

For decades I have not succeeded in delivering any kind of software product; but as of this week, after far too long, I have a program out there. You may now download the Xanadu(R) DIMENSIA(tm) Hyperstructure Construction Kit from xanadu.net as shareware (intro price if you like it, $25). It allows you to make and view interesting multidimensional structures of text. (Unfortunately this currently runs only on Unix and does not presently have a tutorial. We will shortly be setting up tutorials and user guest accounts for trying out the program.)

My very simple system of micropayment is being set up in pilot form by ASCII Corporation, Tokyo, Japan.

My interactive clock / calendar system is presently under development in cooperation with Amaze, Inc. of Liverpool, England and my great friend Roy Stringer, who I think may be the best designer of interactive systems in the world.

I believe my most significant design is what is called xanalogical structure, which is what is behind the Xanadu(R) project and its present-day adaptations. The various Xanadu systems (some implemented; none, unfortunately, presently accessible) have all had xanalogical structure. I believe my second most significant design is Dimensia. And I have a number of other interesting designs, such as the clock/calendar and a furniture system I thought of at age 15, now patent pending or otherwise in the pipe.

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* I know only of Douglas Engelbart, Ivan Sutherland, the SAGE air defense programmers, early air-traffic control system programmers and the team that built the early secret General Motors DAC-I design system.

** The Xanadu project at Autodesk 1988-1992, was not my design and was not under my direction.

To Ted Nelson home page

Generalist

My hero since I was 11 was Buckminster Fuller, who I think *coined* the term "generalist;" I always wanted to study the interrelationships of everything, understand and design things accordingly.

I am not at heart a computer guy; I simply saw early the potential of computers for what I wanted to do and what I believed was right. This included parallel electronic media, deep interconnection, deep annotation, deep intercomparison (the xanalogical model).

Theory of Interactive Software and media
various terminologies

"The Theory of Virtuality"

My ongoing work in other fields includes the following:

Philosophy
General Schematics
structure, modelling, paradigmatics

Social Sciences
Human Worlds: Status, Territory and Paradigm

The theory of strategy The Strategy of Traffic

"The Secret of Human Life" (a very short condensation of my book Biostrategy and Polymind, written about 1987 but never polished).

Law
Transcopyright is a legal doctrine

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Design

To Ted Nelson home page

Contrarian

I have usually disagreed with most people on most subjects. I think most people are usually wrong. And I have been very accurate in my computer predictions of 1960 and 1961. Except, so far, for the main one.

In my earlier life, it was conventional and respectable people I disagreed with most. These days, it is the accepted wisdom of computerdom and the Net which I disdain. I believe that most of today's software is rotten; that "computer basics" is a bunch of lies; and that the World Wide Web-- well, it's a long story. Continue to explore this web site.

However, I have recently come to accept that just because the vast majority of people do a certain thing, that does not necessarily make it wrong. This has been a big concession.

To Ted Nelson home page

Theodor Holm Nelson, 1937-

Visiting Professor of Environmental Information, Keio University SFC campus, Fujisawa, Japan.

Founder and Principal of Project Xanadu, 1960-current.

Best known for coining terms "hypertext" and "hypermedia," 1965.

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To Ted Nelson home page

What I Do

I build paradigms.

I work on complex ideas and make up words for them.

It is the only way.

96.06.03

Ted Nelson's Hyperverse

Mine is a parallel universe in two ways.

I share the physical universe with other people, but it seems I see it very differently. So my world is the same but different.

I am especially concerned about parallelism in many ways: parallel presentation on computer screens, parallel data structures, and considering how things are alike and different, which requires comparing them in parallel. This is what my computer work is about.

WhatDoing.html
98.01.08
(d2

To Ted Nelson home page

"What's He Doing in Japan?"

Since October 1994, with the devoted collaborator and sweetheart [illegible]

Teaching, writing, developing software and getting backing.

Teaching

I am teaching at Keio University Shonan Fujisawa Campus. I like it a lot. Keio is the oldest private university in Japan, and the SFC campus is very dynamic and interesting, with hot Internet connection. The students are smart and enjoyable. (As an interesting metric, about half have home pages.)

Writing

Last year I wrote a book called *The Future of Information*, published in limited English edition last June by ASCII Corporation in Tokyo. When it will be published in the USA I don't know.

I have written an unusual amount here, though most of it is still in partial form, but several pieces have been published, including a piece in the *Communications of the ACM* in 1995 and a recent piece in the W3 Journal.

Developing Software

My 1965 hypertext design, zipper lists, was finally implemented at the Sapporo HyperLab by the HyperLab team, especially Mr. K. Ookubo. (The system is not currently on line.)

At Keio I am working on a demonstration transpublishing project.

With my student seminar, I am working on a data system I call OSMIC (Open Structure for Media Interconnection), which is intended as a public-domain version of the Xanadu(R) structure, especially the Xanadu 88.1 structure designed by Roger Gregory, Mark Miller, Stuart Greene, Roland King and Eric Hill.

Backing

A number of companies have contributed to the transpublishing consortium at Keio.

I am working with ASCII Corporation on a number of things.

Finally, I am laying the groundwork for the new Xanadu(R), which will turns the old Xanadu ideas inside-out for the Internet.

"What's He Doing in Japan?"

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started at: 6:02 AM, *finished* 6:18 AM on 96.09.16

Dear Celeste:

It has been impossible for me to write this letter without rancor, and so my tongue has been tied for decades.

I believe I have been greatly wronged by you. Since you threw me and my things off the farm, I have had to pay well over $100,000 for storage, plus a great deal of interest at high rates. I believe I was not shown Jeanie's will so that I would not make a fuss about being thrown off a place of which I was part owner. I considered suing you for the right to share the land, but chose instead simply to withdraw.

I saw this coming long ago, expecting to be wronged by you after the Holms died, and so I attended in great pain all those family dinners you held, having to listen to your monologues, not allowed to express my own views, not allowed to bring a girlffriend; a prisoner, enduring for years the pain of returning to homes you have thrown me out of. For the sake of Jeanie and Erik and the home of being treated decently.

When the Holms died, I endeavored to open a channel of communication and clear negotiation with you in two mediated sessions. We came to two agreements that you went back on. Apparently you did not notice there were specific agreements, but thought it was merely a matter of expressing feelings.

I wrote you a letter and you refused it. Considering yourself a communicator, you yet permit communication in only one direction.

You took it on yourself to choose what things would be saved from my past life with Jeanie and Papa, allowing me no souvenirs of them. Nothing!

Through all of this, out of family loyalty, I have not spoken of my feelings on these matters to anyone but my closest associates. You, however, denounced me across the length and breadth of the land, and to strangers. While I kept my mouth shut about you even when pestered by reporters from the National Enquirer and the New York Times. Whereas you gossiped unforgivably to the New York Times reporter only three years ago.

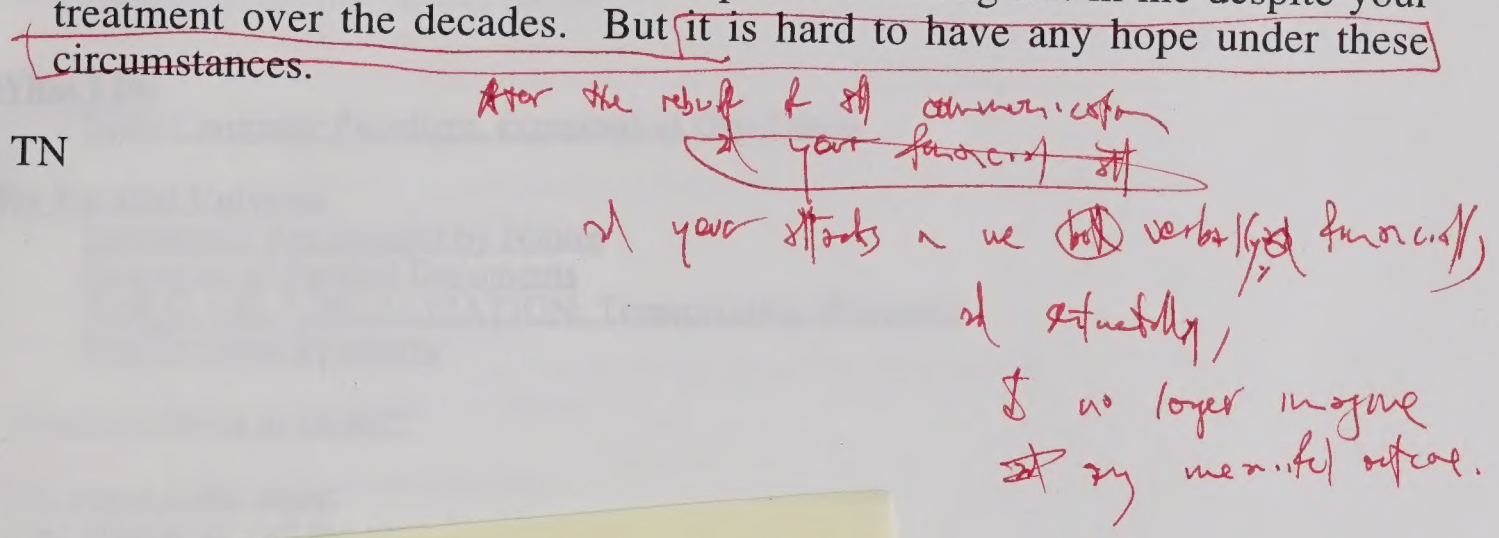
http://www.sfc.keio.ac.jp/~ted/TableOfContentsNEXT.html

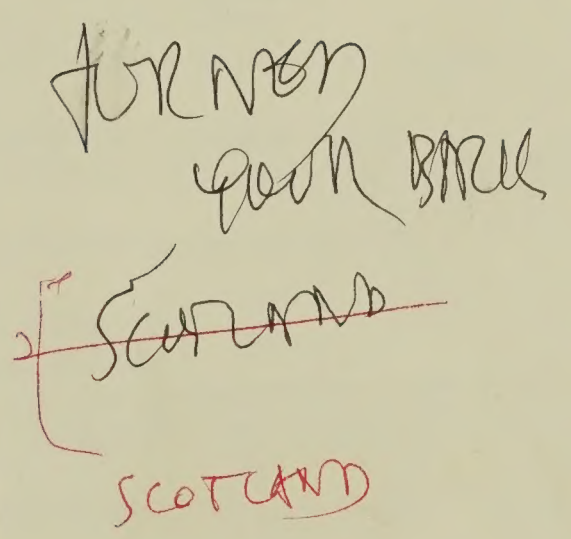
started at: 6:02 AM, *finished* 6:18 AM on 96.09.16

Your attacks on me since 1959, and Ralph's, have been the defining circumstance of my adult life.

Seeing you in June reminded me of how much I loved you as a child, and made me realize that there was still some positive feeling left in me despite your treatment over the decades. But it is hard to have any hope under these circumstances.

TN





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TableOfContents .html
99.01.29 ~~(d3~~ → d4

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To "Cinema of the Mind" main page

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Parallel Data Structures

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What should we call the next decade? *The Oughties!*

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Book, *Literary Machines* (partly available as Jfax scans)
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In progress: *Today's Horrible Computer World*
"Hubris" --Angry post at the state of the computer world by Jay Osako

ZigZag™ -- unusual software designed by TN

ZigZag page at Keio University
ZigZag page at Project Xanadu
From this page you can download a zigzag boot disk that will boot by itself, or a version of ZigZag that can be installed under Linux.

"What's On My Mind", an article on the use of ZigZag, with illustrations

Instructions for ZigZag
Instructions in English
Instructions in Japanese

How to download ZigZag datasets at Keio SFC

Project Xanadu®

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Project Xanadu®

Project Xanadu home page
Xanadu page at Keio SFC

Xanadu structure

Hypertext

Summary of Hypertext Issues (as I see them)

Transpublishing

Transpublishing: An Easy Concept, Difficult to Explain

Transcopyright, the permission method
The original article on the idea: Transcopyright: Pre-Permission for Virtual Republishing
Sample permission statement: Permission statement for picture of TN
Transquotation Demo
Showing student materials
and their corresponding permission statements for text and picture
Suggested formats for transpublication

- - - - -

Transpublishing demos by students
(Note: these use CGI scripts which are not presently maintained,
so they are not currently working)

Payment methods for transpublishing

"For My Students at Keio SFC"

How to make client-side image maps

"Information Media" course at Keio SFC

Information Media Course Outline
Summary of the Course
(Sends you to Summary of Hypertext Issues)
Class Schedule for "Information "Media"
Assignments for "Information Media"
Clarification of The Terrible Assignment Three
Doug Engelbart page
Vannevar Bush page

"Cinema of the Mind" course at Keio SFC

Cinema of the Mind Course Outline
xxxx
Class Schedule for "Cinema of the Mind"
Assignments for "Cinema of the Mind"
Theory of Virtuality (see The Future of Information, sections pages 26-39. Download Ch3Part1b and Ch3Part2.)
Brief Theory of Design
"Interactive software is a branch of motion pictures"
Spaces
State-diagram programing, and lollipop notation
Reference structure and notational engineering

Workshop in New Hyperstructure at Keio SFC

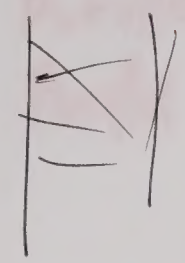
.

PARALUNIVERSE

MY PARALLEL UNIVERSE /98.10.23

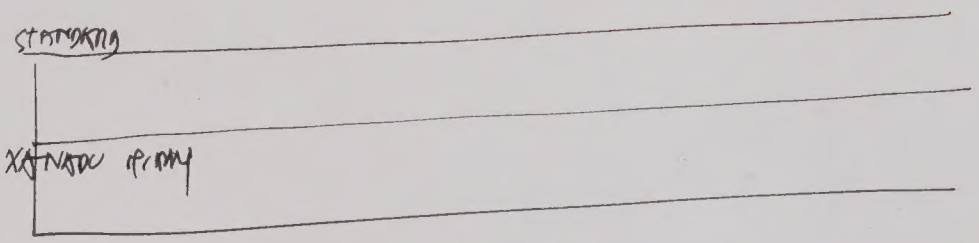
A

FUNDAMENTAL VIEW

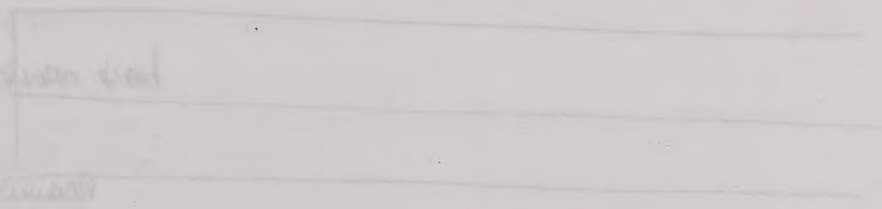


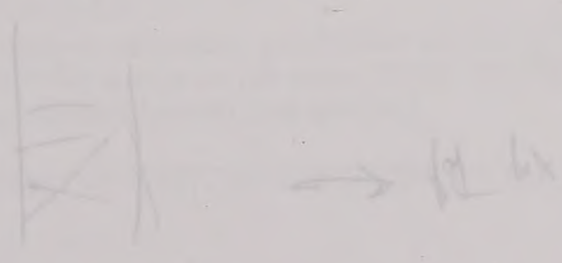
→ Pot pix

PARALLEL HISTORY



Paraluniverse





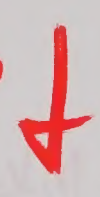
PARALLEL PIC

~~DFT HISTORY OF CAPITOLS~~

~~DFT VIEW OF CAPITOL~~

Parallel History of Capitols

Parallel world of capitols



[pers/univers ~98.10.27]

HOW SHOULD IT LOOK FOR DETAILED INTERCOMPARISON?

with scrolling in vertical fields

Generalizing this, consider the sequential document with multiple links defined then.

~~CRISS-CROSS PARA~~

PARALLEL DOCUMENTS OF THIS FORM ARE A VITAL AND CENTRAL STUDY, and fixing the web so we can see them is one of the fundamental problems

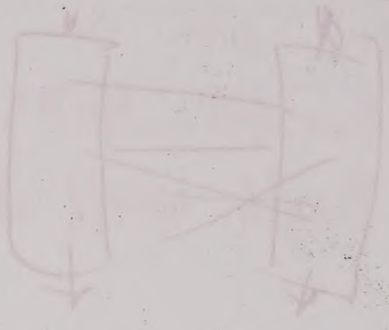
PARALLEL DATA STRUCTURES

PARALLEL TEXT (gen. chron) vs Bill & Hillary x US Bd & Kidd

Eg Differing Bible Versions

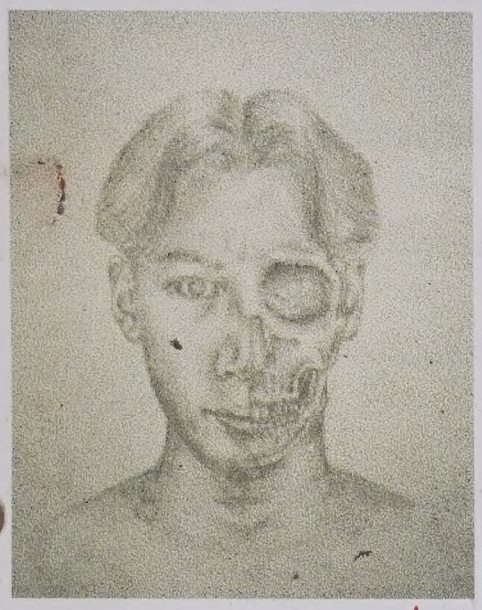
Holy books

~~Sacred~~ Scripts



To Ted Nelson Home Page
To Transpublishing and Transcopyright Introduction
To Student Transpublishing Materials

Self-Portrait, by Kohei Sasagawa



Trans 1997 Kohei Sasagawa

To transquote this virtually on some other Web page, follow the transcopyright notice to the Permission Page. This is a simulation of what a proper transquotation server will do.

Published under transcopyright in partial fulfillment of the requirements of Prof. Nelson's "Information Media" course, fall 1997.

tpubStudentDemos
98.11.19 (-d5 → d6

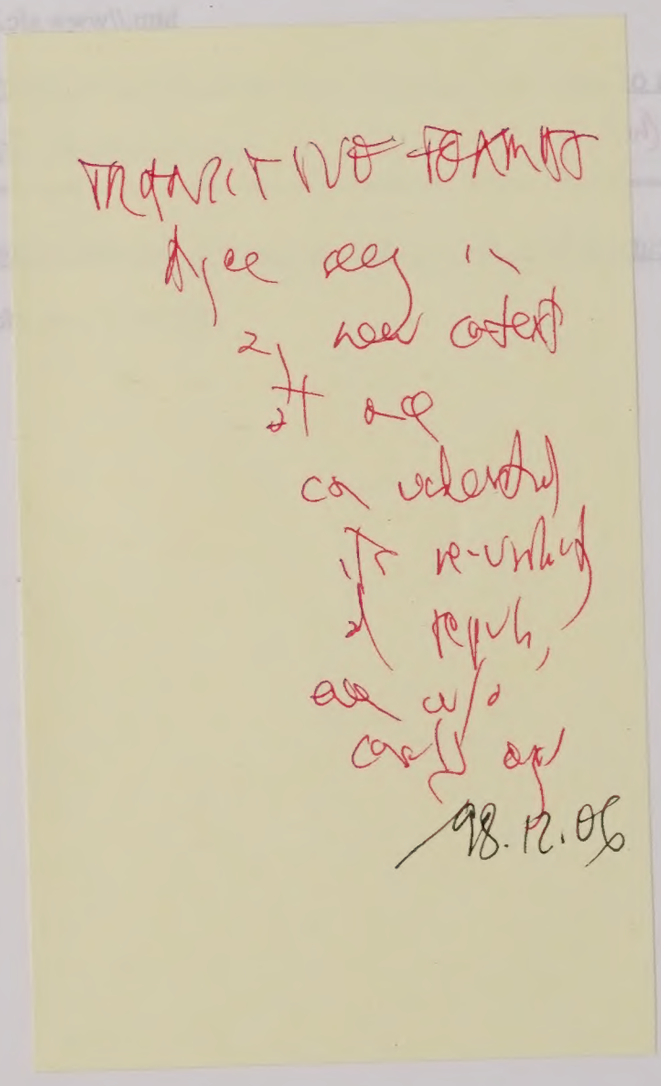
To Ted Nelson Home Page

Student Transpublishing Demos at Keio SFC

(Best seen with Japanese Browser)

Transpublishing Work in Progress → d6

1. Color Catalog of Transpublishable Student Contents from Nelson's Information-Media course, 1997-8
   http://www.mag.keio.ac.jp/~fooh/tpb
2. Full list of transpublishable contents submitted by students of Nelson's Information-Media course, 1997-8
   http://www.crew.sfc.keio.ac.jp/~yousuke/transpub/list.shtml
3. Transpublishing Resources at Keio
   http://www.crew.sfc.keio.ac.jp/~yousuke/transpub/resources.html
4. Sample composite document by Fumiko Ichikawa
   http://www.mag.keio.ac.jp/~fooh/tpb/sample/
5. Sample composite document by Shu Nakamae
   http://www.sfc.keio.ac.jp/~t95663sn/ted-temp/sample.html
6. Application of transpublishing to traditional Japanese poetry, by Dr. Togasi (1997)
   http://arcadia.crew.sfc.keio.ac.jp/~gako/transpub/ Transclude.cgi
7. Transpublication form for registering transpublishable materials
   http://www.crew.sfc.keio.ac.jp/~yousuke/transpub/submit.html



TpubFormats .html
98.12.06 (d3

To Ted Nelson Home Page
To Transpublishing and Transcopyright main page

Transpublishing Formats

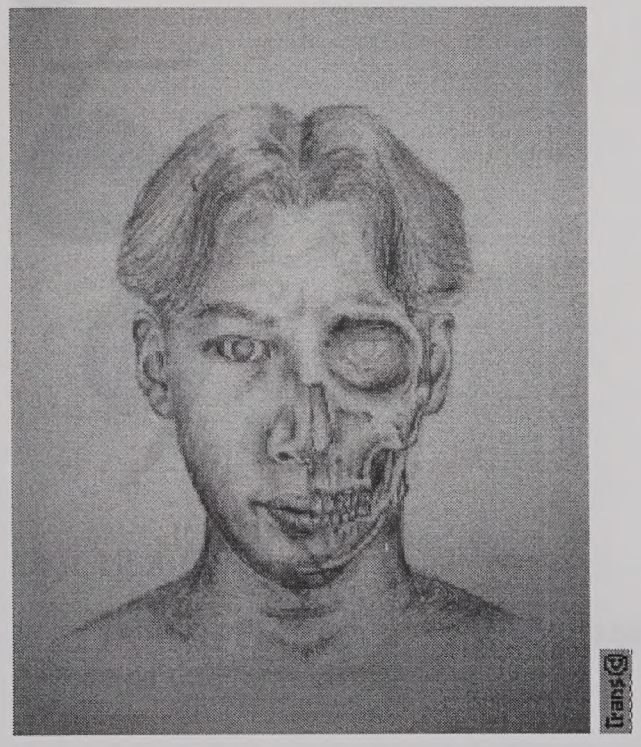
These simple formats are not mandatory. However, if transpublishing is to be successful, a proliferation of variant formats would be highly counterproductive. (See the recent comments on "forking" projects in Eric Raymond's Halloween document-- (once there, scan for the term)).

We recommend that those participating retain
- the same structure of links
- the magic-string format
- no conditions on new contexts

While variations may be productive in the future, at the present time they would probably serve to undercut the idea

These transpublishing formats provide for a permission statement, an original context, and a method of keeping them all together by copying a magic-string into the source HTML. (Unfortunately, editing the source HTML is not convenient on most editors, and that is also something we must deal with.)

SHRINK THIS PIC



THE DIFFERENT FORMATS

PICTURES (.gif and .jpeg)

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SHRINK THIS PIC

THE DIFFERENT FORMATS

PICTURES (.gif and .jpeg)

Closeup of the slugs

DISCUSSION

IF IT DOESN'T ARRIVE, THE SLUG INDICATES THAT IT SHOULD BE THERE
Failure of delivery: empty slug

TEXT
Closeup of the slugs

DISCUSSION

IF IT DOESN'T ARRIVE, THE SLUG INDICATES THAT IT SHOULD BE THERE
Failure of delivery: empty slug

VIDEO
Proposed slugs

IF IT DOESN'T ARRIVE, THE SLUG INDICATES THAT IT SHOULD BE THERE
Failure of delivery: empty slug

AUDIO
Proposed slugs

NO SCREEN MANIFESTATION
Therefore different from the others, where IF IT DOESN'T ARRIVE, THE SLUG INDICATES THAT IT SHOULD BE THERE
Failure of delivery: empty slug

THIS ELABORATE PERMISSION STATEMENT IS CURRENTLY NEEDED TO MAKE THE TRANSCOPYRIGHT CONCEPT CLEAR.
Once the system is understood and accepted, it can all be much simpler.

Transcopyright Permission Page

Permission to Transquote (NOT BY COPYING-- specific details below)

(Read more about Transpublishing and the Transcopyright Permission System,
a Win-Win system for allowing on-line republishing of copyrighted materials.)

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***Permission granted by Rightsholder / Copyright Owner:* Ted Nelson, 1 January, 1999**

Subject: Ted Nelson. To original context of picture (= Ted Nelson's Home Page)
Date of work: approx. November 1995
Photographer: Unknown (official photographer of 1995 Hacker Conference).
Server Location of work: http://www.sfc.keio.ac.jp/~ted/tednobg.gif

---

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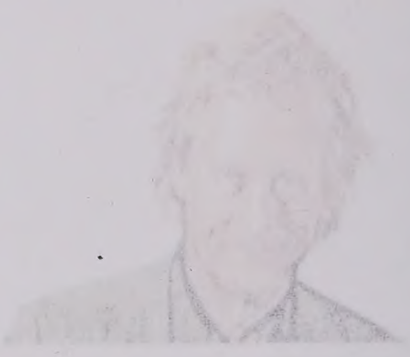

---

1. Method to transquote at half size, like this:

Include the following HTML transquote-string in the SOURCE of your Web page:

```
<P><IMG SRC="http://www.sfc.keio.ac.jp/~ted/tednobg.gif" HEIGHT=108 WIDTH=128>
<A HREF="http://www.sfc.keio.ac.jp/~ted/TedPicPermish.html"><IMG
SRC="http://www.sfc.keio.ac.jp/~ted/transpub/tcosymb.gif" HEIGHT=7 WIDTH=18></A>
</P>
```

2. Method to transquote at full size, like this:

Include the following HTML transquote-string in the SOURCE of your Web page:

```
<P><IMG SRC="http://www.sfc.keio.ac.jp/~ted/tednobg.gif" HEIGHT=216 WIDTH=256>
<A HREF="http://www.sfc.keio.ac.jp/~ted/TedPicPermish.html"><IMG
SRC="http://www.sfc.keio.ac.jp/~ted/transpub/tcosymb.gif" HEIGHT=14 WIDTH=36></A>
</P>
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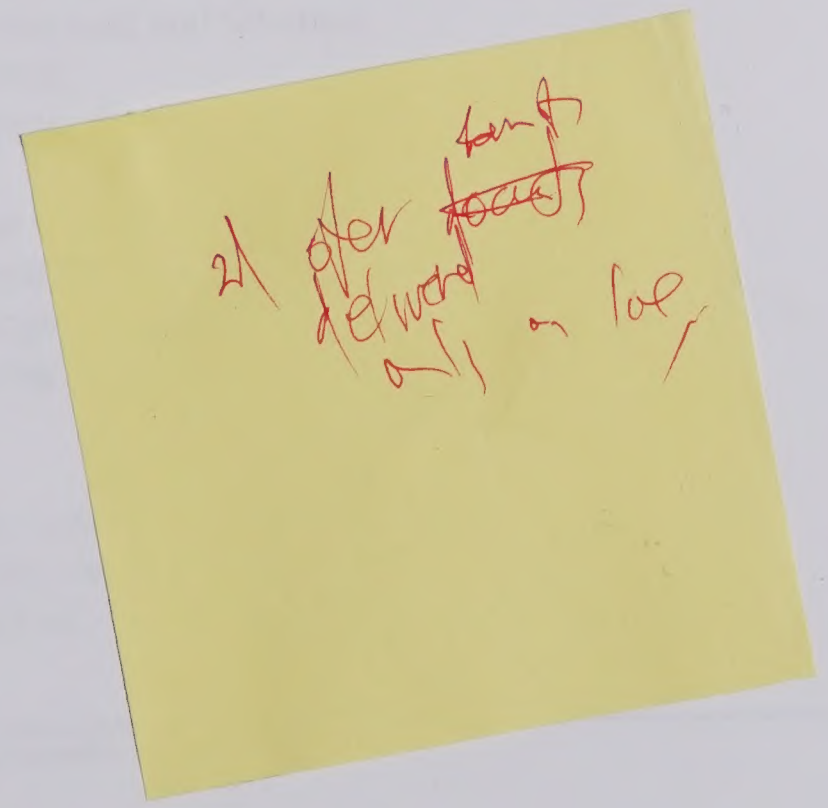

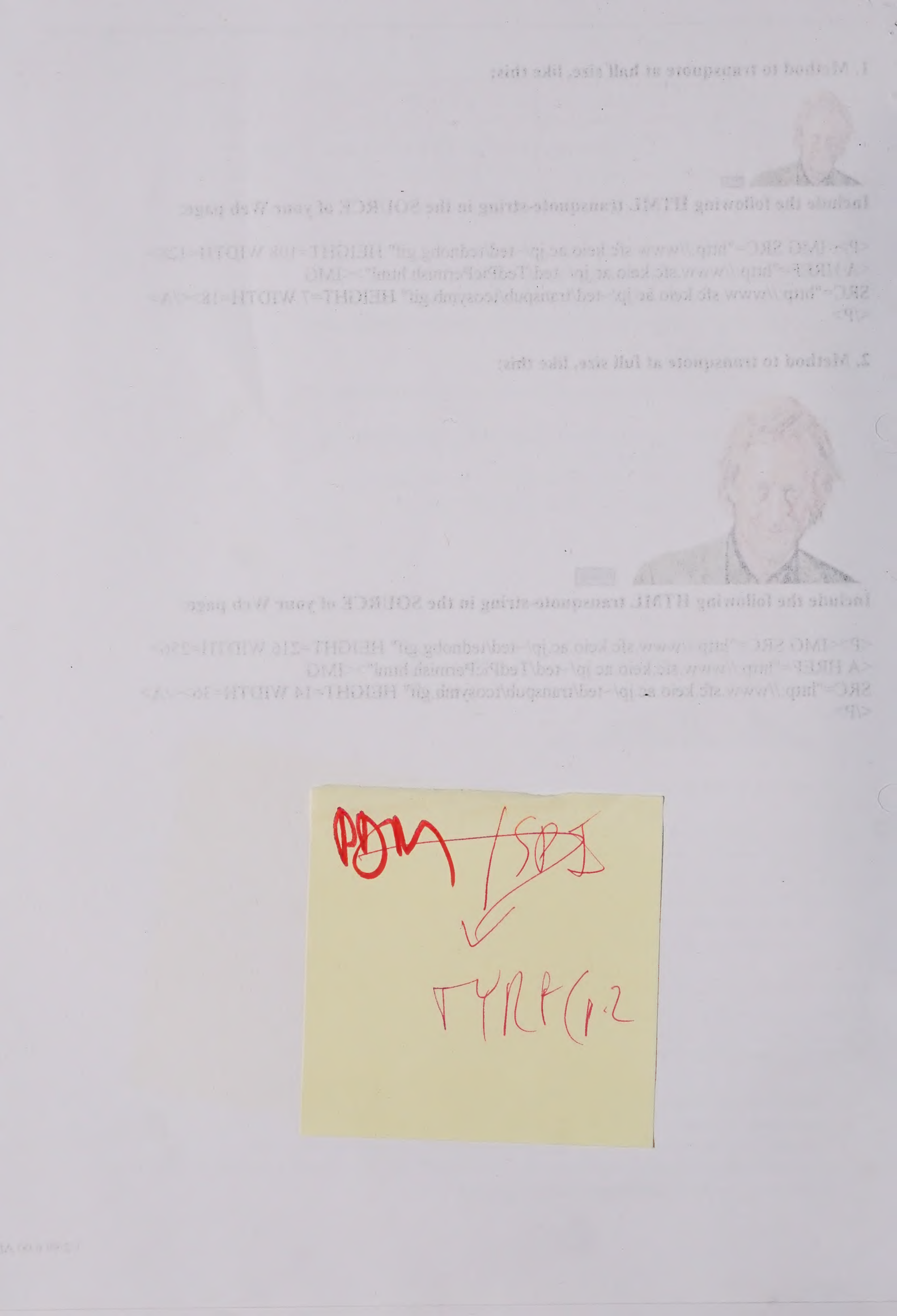

Delivered-To: alias-xanadu-net-ted@xanadu.net
Mailing-List: contact zzdev-help@xanadu.net; run by ezmlm
Reply-To: zzdev@xanadu.net
Delivered-To: mailing list zzdev@xanadu.net
Date: Fri, 2 Oct 1998 04:08:02 +1000
From: Andrew Pam <xanni@glasswings.com.au>
To: zzdev@xanadu.net
X-Mailer: Mutt 0.93.2i
Subject: [zzdev] Re: [zzdev] :zz: "OS theology

On Fri, Oct 02, 1998 at 02:03:40AM +0900, Ted Nelson wrote:
> >I can't presently see any advantages to developing hardware device
> >drivers using the Zigzag structures, and considerable disadvantages.
> >Feel free to convince me otherwise with examples.
>
> Hardly. Let it stand as a religious statement:
> "Files (named lumps in fixed places, combining
> various types of data), and hierarchical directories,
> are grotesque and stupid structures whose
> grotesquerie is not recognized because they are
> so familiar.
> "Similarly, program and data references based
> on string-scans of the names of such files and
> directories, and on paths among them-- the
> fundamental underlying referential structure of
> all operating systems today-- is a mistake.
> "For discrete elements now packed into files,
> as well as discrete references currently made
> to files, directories, inodes, processes and whatnot,
> cellular reference could be better;
> "ZZpaths provide a far more general referential
> structure than pathnames.
> "The general alternative here is a world where
> plexes of smaller discrete elements, connected through
> ZZpaths, replace 'files' to a large extent, and where
> ZZpaths become a more general referential structure
> to replace OS pathnames."

I fully agree with you. However, you are still addressing the
issue of structuring, filing, naming and retrieving of information,
all of which Zigzag is well suited to. The point I was making was

about the unsuitability of Zigzag to low-level hardware control, a completely different issue. Files, directories, paths, inodes etc. are all filesystem concepts, and may be used as an interface to devices; of course we could replace this with a cell visualisation of (and interface to) devices, which would still be provided by an operating system layer which I believe is outside the direct scope of Zigzag.

Cheers,

*** Xanni ***

--

mailto:xanni@xanadu.net Andrew Pam
http://www.xanadu.com.au/ Technical VP, Xanadu
http://www.glasswings.com.au/ Technical Editor, Glass Wings
http://www.sericyb.com.au/sc/ Manager, Serious Cybernetics
P.O. Box 26, East Melbourne VIC 8002 Australia Phone +61 3 96511511

Delivered-To: alias-xanadu-net-ted@xanadu.net
Mailing-List: contact zzdev-help@xanadu.net; run by ezmlm
Reply-To: zzdev@xanadu.net
Delivered-To: mailing list zzdev@xanadu.net
Date: Fri, 9 Oct 1998 20:02:52 +1000
From: Andrew Pam <xanni@glasswings.com.au>
To: zzdev@xanadu.net
X-Mailer: Mutt 0.93.2i
Subject: [zzdev] Re: [zzdev] :zz,pdm,spi,virt: the continuing OS thread

On Fri, Oct 09, 1998 at 06:18:13PM +0900, Ted Nelson wrote:
> 1) My principal point is that it's not just a data structure.
> Like any idea, but more than most, it can be made the
> center of a complete all-encompassing paradigm for
> the structuring of interaction, the structuring of relationships,
> the structuring of programs, the structuring of utilities.
>
> Existing operating systems are based on files, directories,
> and hierarchies, with a lot of string-referential mechanisms
> for the selection and manipulation of these things. That is
> not merely the file structure, it is the unifying conceptual
> structure. I am proposing another unifying conceptual
> structure. Drivers can be added !-)

Well explained sir!

> Repeating Andrew's second remark above:
>
> >However, that doesn't
> >make Zigzag a complete OS in itself.
>
> 2) I didn't say it *is*. Could be. And the point I am
> making to my students, and y'all readers, is that things
> could be *completely different*. Most people don't get that.

Yes indeed. I think we definitely agree there.

Cheers,
*** Xanni ***
--
mailto:xanni@xanadu.net Andrew Pam
http://www.xanadu.com.au/ Technical VP, Xanadu
http://www.glasswings.com.au/ Technical Editor, Glass Wings
http://www.sericyb.com.au/sc/ Manager, Serious Cybernetics
P.O. Box 26, East Melbourne VIC 8002 Australia Phone +61 3 96511511

Delivered-To: alias-xanadu-net-ted@xanadu.net
Mailing-List: contact zadev-help@xanadu.net; run by ezmlm
Reply-To: zadev@xanadu.net
Delivered-To: mailing list zadev@xanadu.net
Date: Fri, 9 Oct 1998 20:02:32 +1000
From: Andrew Pam <xanni@glasswings.com.au>
To: zadev@xanadu.net
X-Mailer: Mutt 0.93.2i
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*** Xanni ***

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mailto:xanni@xanadu.net Andrew Pam
http://www.xanadu.com.au/ Technical VP, Xanadu
http://www.glasswings.com.au/ Technical Editor, Glass Wings
http://www.serio.com.au/sc/ Manager, Serious Cybernetics
P.O. Box 26, East Melbourne VIC 8002 Australia Phone +61 3 9663 1511

BROKEN 98.04.11 [see source]

see this document via transclusion gateway, and you'll find a big difference

doug.insp.d1
97.01.09
FROM NOTEBOOK.

THE INSPIRATION OF DOUG

Douglas Engelbart is so many things to so many people that it's hard to say anything about him.

Douglas Engelbart. trans © Ted Nelson

Many people have heard that he invented the computer mouse, but those who know him know the rest of his work is much greater. He invented word processing, outline processing, multiple windows on a computer screen, and even a five-finger keyboard for the hand that's not holding the mouse.

trans(c)

But his real vision is much greater than that: a lifelong vision of a world of human collaboration and empowerment.

I think that tomorrow's institutions can be (must be) far better adapted to their environment, much better at providing for a full life style for everyone. These changes require a very significant increase in the institutions' ability to develop, support, and integrate the intellectual power of their individuals and organizations. And, as I see it, this ability will be directly dependent upon advanced application of

interactive computers and multi-access computer networks.... But the following condition is very strong in this "implications" picture: to harness this technology toward these ends will require intense concurrent development of our very complex and sophisticated system of concepts, conventions, methods, skills, organizational forms, attitudes, and values. ... But there's much more to him even than that. Those who know Doug Engelbart as a colleague, friend or teacher know even more. We know his warmth and we know his determination and we too are inspired to warmth and determination in his honor.

```
<!DOCTYPE HTML. PUBLIC "-//W3C//DTD HTML. 3.2//EN">
<HTML>
<HEAD>
<TITLE>doug.html</TITLE>
</HEAD>
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ALINK="#0000FF">

<a
href="http://www.crew.sfc.keio.ac.jp/~yousuke/transclude3.cgi?url=http://www.c
rew.sfc.keio.ac.jp/~yousuke/transpub/doug.html">see this document via
transclusion gateway</a>, and you'll find a big difference<p>

<FONT SIZE=-1>doug.insp.d1</FONT><BR>
<FONT SIZE=-1>97.01.09</FONT><BR>
<FONT SIZE=-1>FROM NOTEBOOK.</FONT><BR>

<P><B><FONT SIZE=+2>THE INSPIRATION OF DOUG</FONT></B></P>

Douglas Engelbart is so many things to so many people that it's hard to say
anything about him.

<P><IMG SRC="http://www.sfc.keio.ac.jp/~ted/celeb.pix/doug.in.garden"
HEIGHT=320 WIDTH=240>
<A HREF="http://www.bootstrap.org/">Douglas Engelbart</A>. <A
HREF="http://www.sfc.keio.ac.jp/~ted/celeb.pix/comp.celebs.html">trans</A>
<A
HREF="http://www.sfc.keio.ac.jp/~ted/celeb.pix/doug.in.garden.permish.html">&c
opy;</A>
<A HREF="http://www.sfc.keio.ac.jp/~ted/">Ted Nelson</A> </P>

Many people have heard that he invented the computer mouse, but those who know
him know the rest of his work is much greater.  He invented word processing,
outline processing, multiple windows on a computer screen, and even a five-
finger keyboard for the hand that's not holding the mouse.

<P><IMG SRC="http://www.sfc.keio.ac.jp/~ted/celeb.pix/doug.chording"
HEIGHT=320 WIDTH=240>
<A
HREF="http://www.sfc.keio.ac.jp/~ted/celeb.pix/doug.chording.permish.html">tra
ns(c)</A></P>

But his real vision is much greater than that: a lifelong vision of a world of
human collaboration and empowerment.<P>


<P>
I think that tomorrow's institutions can be (must be) far better
adapted to their environment, much better at providing for a full life
style for everyone. These changes require a very significant increase
in the institutions' ability to develop, support, and integrate the
intellectual power of their individuals and organizations. And, as I
see it, this ability will be directly dependent upon advanced
application of interactive computers and multi-access computer
networks....

 But the following condition is very strong in this "implications" picture:
```

to harness this technology toward these ends
will require intense concurrent development of our very complex and
sophisticated system of concepts, conventions, methods, skills,
organizational forms, attitudes, and values. ...
But there's much more to him even than that. Those who know Doug Engelbart as a colleague, friend or teacher know even more. We know his warmth and we know his determination and we too are inspired to warmth and determination in his honor.

</BODY>
</HTML>

Ed.2/NX/22

zzzx .html
98.06.23 (d14 5/15

ZIPPER LISTS, ZIGZAG$_{tm}$, AND XANALOGICAL STRUCTURE

Theodor Holm Nelson
Keio University (Fujisawa, Japan) and Project Xanadu (Sausalito, California)
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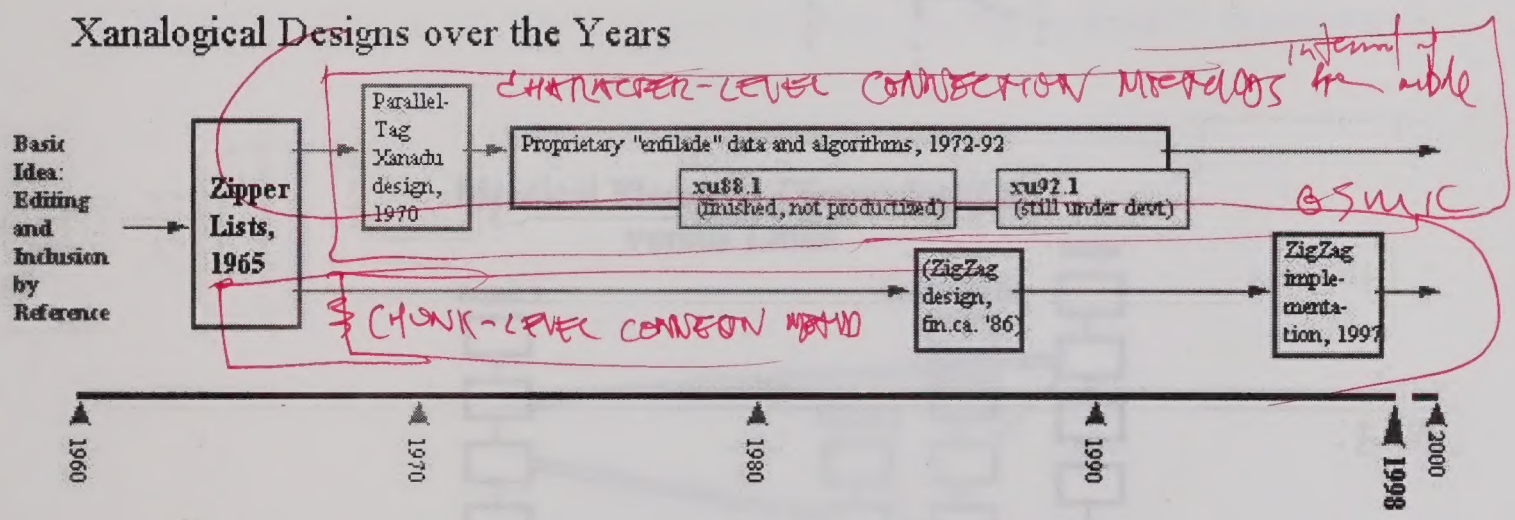
This is a brief clarification of zipper lists and their relation to both ZigZag and the Xanadu project. All of these are xanalogical designs, as will be explained.

Zipper lists, the design presented in 1965, is the origin of most of my designs. It was my first complete and exact information architecture for personal and textual information. The various Xanadu designs came from it, but so does ZigZag.

Each of these designs is not merely a text system or a hypertext system, but a complete environment, i.e., the design for an operating system for many purposes. (By "operating system" I mean the system of facilities routinely available to users for all purposes.)

The history is easily summarized in this diagram:



Let me briefly describe these.

ZIPPER LISTS

Sequences of items, chunks or paragraphs. Very specific rule: for simplicity and viewability: an item one one zipper list could connect to only one item on any other particular zipper list. This meant, for instance, that if zipper list A had four items and zipper list B had seven items, there could be no morethan four connections between A and D.

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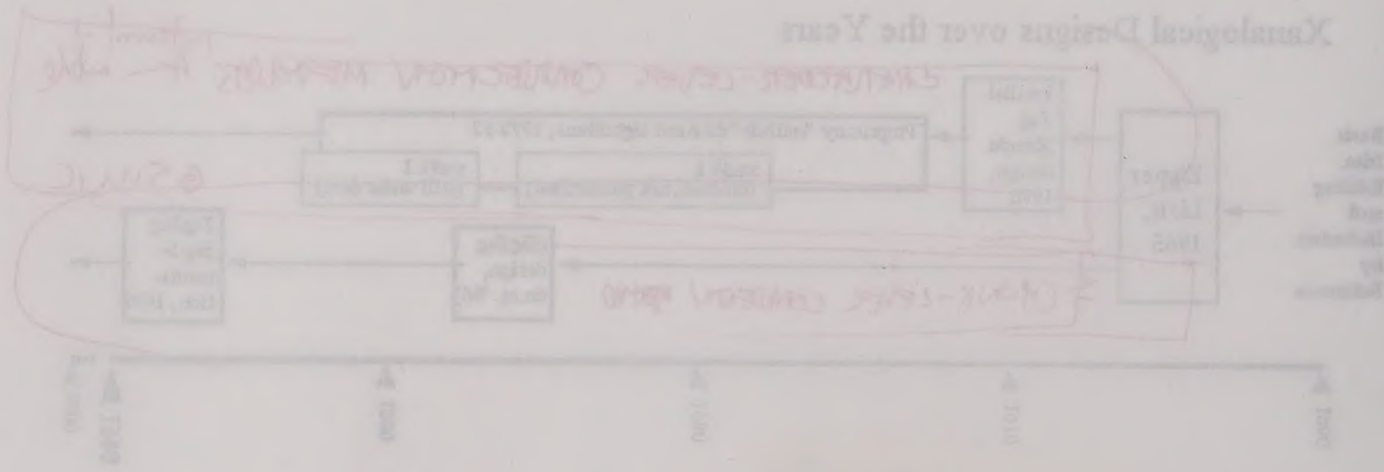
The history is easily summarized in this diagram:

Xanalogical Designs over the Years



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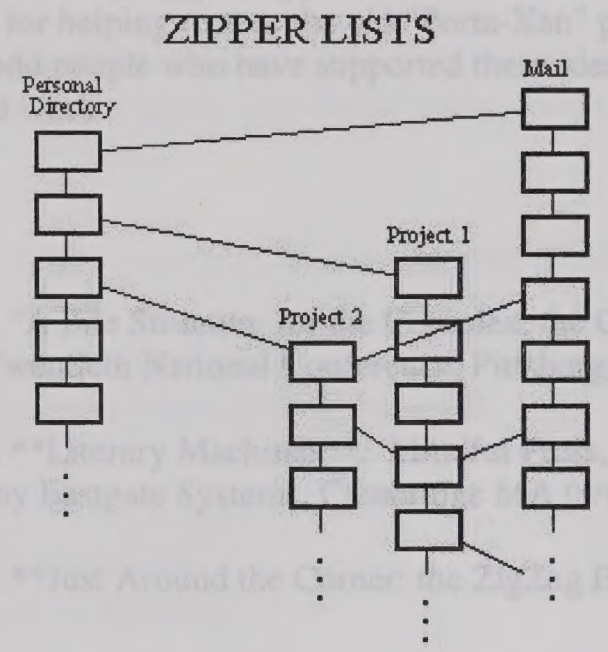
The legend at the lower left explains the two different kinds of connections that are shown: what are here called "links" and "same entries".

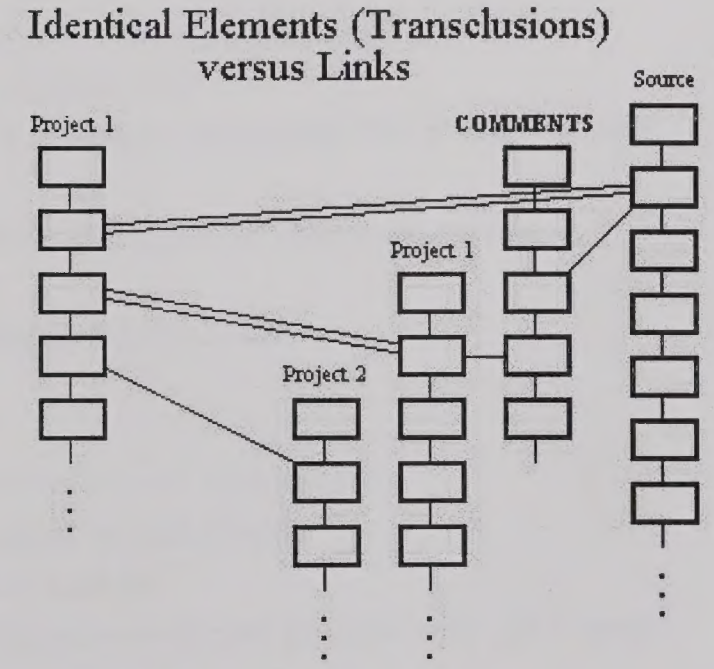
TRANSCLUSION: cross-referencing, cross-filing
RE-USE BY REFERENCE

FINE-GRAIN TRANSCLUDED ITEMS INSTEAD OF HIERARCHICAL LUMPS

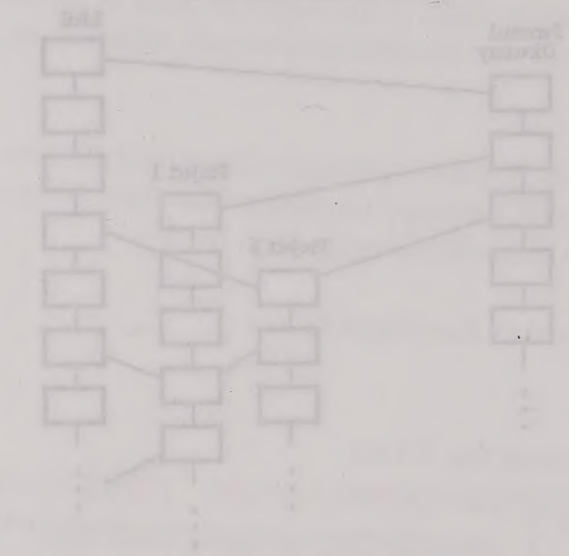
* Actually, in the paper I used the term "zippered lists," but for over a decade I have simplified that to "zipper lists" or "zips".

[PIC: Zipper Lists





ZigZag is also an operating system ...



The Parallel Xanadu design

The Enfilade Designs

ACKNOWLEDGMENTS

I especially want to thank Keio University for its support and understanding; Marlene Mallicoat for her brilliant and unflagging encouragement, counsel and logistical support; Andrew Pam for his splendid implementation of the ZigZag prototype, and Bek Oberin for her recent contributions to its growth; Kazuhiro Yamada for helping restore the old "Porta-Xan" picture; and the Xanadu team over the years, a hundred-odd people who have supported these ideals and aspirations with their hearts, minds and very hard work.

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The Parallel Xanadu design

The Enfilade Designs

HtHist
[esp. for my Media class]

Web is MINIMAL HT structure
Still sequential objects with flimsy 1-way connex

========== van Dam, Nelson, Carmody et al

First Browser (my design)
First Word Processor & DTP (his idea)

========== van Dam
"Webs" (a bad idea)
"anchors" (a bad idea)

========== Berners-Lee:
Built from FTP
HT structure maintained ONLY BY OWNER

Other HT structure must build on that

Embedded Anchors

========== Andreessen:
Added special effects
Put stuff In
Virtual inclusion/tcl possible with .gif 7 .jpeg

========== UNBREAKABLE LINKS
Links are attached to the characters
As versions change, the links remain attached to each character

As long as any character is left, the link is still there

========== AUGMENT

Tree-structured system of data
- Outline form built in
- Operations climbed the tree and did various things to it
- 'Journal'
- 'Publication' a group authorization process
- Views applicative on content

========== WEB VS XU

This is not a short discussion.
- Not simple, like
-- How is a chihuahua different from a Great Dane?
- Comparison makes it more complex, as with
-- How is plankton different from an aircraft carrier?

Practically NO RELATION except word 'hypertext'--

Web links
- trivial
- restricted
- ever-breaking

Xu links
- RICH AND COMPLEX
- "bidirectional" (everybody's wrong term)
-- 2-way followable (bifollowable)
-- both-side visible (bivisible)
- Link is TWO LISTS AND A TYPE

Xu document
- NOMINAL
- PERMEABLE
- RE-USABLE
- MULTI-LINKABLE

TRANSCLUSION, THE COMPLEMENT OF THE LINK
- One thing in many places
- Contexts viewable side-by-side
- everything reusable and republishable through transclusion op
- Links ORTHOGONAL to transclusions

Xu Primitives
- ADDRESSABLE MEDIA POOL (AMP)
- VVs and OBJECTS CONSTRUCTED FROM POINTERS TO THE AMP

Xu built for
- DISSENT AND DISAGREEMENT
- Traceable Re-Use
-- Seeing the original
-- Comparing other uses
- Annotation
- Version Management
- Rights Management

XU is a PROPOSAL FOR A LITERARY STRUCTURE
AND A WHOLE BASIS FOR SOCIETY
Xu can be implemented various ways

==========

CURIOSITIES

Curious symmetry:
others implement transclusion as links (therefore inadequate)
88.1 implements links as transclusions (great power)

Our rich links:
one 88.1 link is equivalent to 2 documents

==========

MY WEB REMINISCENCE

Talk at NCSA, 1989? 1991?
Larry Smarr was going to join us;
then he said he had something else to do.

Then came Mosaic.

- - -

TBL came to Autodesk the day Xanadu was cancelled.

John Larson showed me Mosaic in 1994.
I still didn't think much of it.

=====

MY HYPERCARD REMINISCENCE

I heard (haven't confirmed) that Atkinson got the idea at Hackers I
Sculley called me in (at my expense)
(thanks to a young man with a strange name who was his assistant)
We spent a pleasant hour
Now I think he was checking to see if I'd sue

=====

MY LOTUS NOTES REMINISCENCE

Talking to Mitch Kapor
He looked at ZZ under nondisclosure

=====

MY CIA REMINISCENCE
They were going to back me (they generally don't)
Eventually they got NoteCards by Frank Halasz

I would've given them a LOT better system

=====

My Engelbart reminiscence

Jovanovich wouldn't come with me

I said what I wanted to do

He said he needed a programmer

We parted friendly

(I resolved to get a skateboard)

The Future Is a Terrible Place

OVERALL PRINCIPLES ==========

DEMOGRAPHY: the vast growth of population, mostly poor
- Grinding poverty
- Ferocious enforcement by police, shooting of poor who get out of line

RESOURCES: divided among more and more people
- -- land
- -- clean areas
- -- clean water
- -- highway space
- -- fuel for vehicles
- -- garbage

HATRED
- Grows in bad times and among those with thwarted expectations

CORRUPTION
- Has always existed everywhere
- Will always exist everywhere *in certain sectors*

ANTI-SOPHISTICATION
- - Country and Western
- - Nativistic Movements
- - Fundamentalism

DRUGS
- - universal, continuing, pervasive

The Future Is a Terrible Place

- with some governmental penetration

NATIONALISM
Attacks on foreigners, minorities
Attacks on liberals
Vigilantes, death squads, paramilitaries
-- unofficially associated with the police and/or army

•